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EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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EDITORIAL NOTES.

The absence of disease amongst horses in the Metropolis just now must be very satisfactory to owners, and it would be churlish perhaps to say that the veterinary practitioner viewed the matter with any different feeling. We have heard it asked how veterinarians are to live when they have exterminated all the contagious diseases, and taught the horse-owner to prevent the others by sound hygienic and sanitary arrangements. At first sight it does seem somewhat altruistic for the profession to be constantly endeavouring to prevent or stamp out the diseases and accidents which constitute the reason for its existence. We have got rid of Cattle-plague and Foot-and-mouth disease. We are getting rid of Pleuro-pnemonia, and we are devoting some attention to the prevention of Tuberculosis. Glanders is now confined to a few large towns, and the Variolous diseases of animals are so rare or so simple as to afford very little practice to any one. The principles of good feeding, which have been taught almost entirely by veterinarians, have reduced diseases of the digestive organs to a minimum, and the art of ventilation, upon which we have insisted, has rendered respiratory disease much more rare, and almost exterminated ophthalmic affections which our older authors described as common. Do we really lose by all our good advice and all our scientific teaching? We think not. The thoughtful stock-owner must recognise that the profession has done good, and that it has a strong claim to the position of reliable adviser which it assumes. We have demonstrated our value, and we shall reap the reward of our services by being consulted more frequently than if we had adopted the selfish plan of standing silent whilst disease prevailed all around us. We may not always be so successful in keeping contagious diseases out of the country, and no one knows when some new epidemic may be introduced.

We may always count on the prevalence of accidents and the results of ignorance and carelessness; whilst the spread of education will slowly but surely render the rivalry of the empiric less formidable, at the same time that it will open the eyes of the stock-owner to the advantages of more frequently employing the scientific expert to guide and assist him in his operations.

The legal position of the operation of dishorning cattle has recently been before the superior courts in Scotland and Ireland. In both countries the Judges have decided that it is not cruelty when properly performed. Their decision is opposed to that of the English courts, and we now have the somewhat paradoxical condition that what is cruelty in Norfolk is a legitimate operation in Haddington or in Ulster. This contradictory state of the law is due to the fact that the appeal courts give their decision not entirely on the facts of the case but partly on the findings of the court below, and of course upon the evidence given in each case. The evidence in each case depends a good deal upon the way the prosecution and the defence marshal their witnesses, and bring out or disguise the meaning of statements. The evidence may be good, bad or indifferent, but a clever lawyer may be able to turn the balance of the judicial mind. In the English case the prosecution fairly swamped the defence, in the Scotch case the lawyer for the defence was worth at least six good witnesses, and in the Irish case with witnesses and lawyer were strongest on the side of the defence. As far as we have read no judgments by the Appeal Courts, no Bench took such a detailed view of the evidence or such a wide view of the general question as the English, and we believe that the majority of the veterinary profession will agree that the operation is very painful, that it is not justified by the results attained, and that it does nothing which cannot be done by other means. The question is really narrowed down to a very definite and limited one. Only two classes of cattle are named as requiring dishorning—Irish and Canadian. Only in one condition is it necessary—whilst feeding in enclosed yards. Is it quite proven that these yards are always big enough for the number of animals put into them, and is it beyond doubt that the feeding appliances are so distributed as to fairly allow each beast to feed without great crowding? We confess it does seem a little heroic, because one animal in twenty is a nuisance, to adopt the plan of sawing the horns off the nineteen as well as off the offender. To say that dishorning is not very painful is nonsense, and to say that the pain is momentary is untrue. The operation can only be justified on the plea that it is necessary to the methods of agriculture; and the evidence in the various cases has not yet convinced us of any such necessity.

The next meeting of Council will take place on the day preceding the Derby. It is a meeting for a special purpose—the election of a President and six Vice-presidents and the appointment of Committees. This year the meeting will have more than usual interest, as its results must have a very important effect upon the Council in its relation to the new Charter. It is quite possible the old council may neutralise the effect of the profession's vote, by electing six vice-presidents opposed to the three points which every successful candidate accepted. The result must be watched closely, as it may be necessary, next year, for the profession to again distinctly assert itself.

CASES AND ARTICLES.

DESCRIPTION OF A PURE-BRED SHETLAND FOAL.

By Robt. Levie, M.R.C.V.S., Lerwick.

Petite the Second, a pure-bred Shetland mare pony, on the farm of A. Sandison, Esq.. Uyasound, Shetland, produced a very small male foal last week. This diminutive specimen of the equine family when four days old weighed 27 lbs., and stood 22½ inches. It is the smallest specimen ever known in these islands. It is a model Shetland pony, and may be described as a Clydesdale in miniature. The dam is 34 ins. high, the sire, Triptolemus, 39½ ins.

Mr. Sandison has been a large breeder for over 40 years, and has of late paid special attention to the rearing of pure bred Shetland ponies. He has some very fine specimens on his farm. The prevailing colours are black and brown, and the average height 39 ins. There is a stud book now for pure-bred Shetland ponies, and great care is being exercised in their rearing.

DR. KOCH'S LYMPH AS A DIAGNOSTIC AGENT IN TUBERCULOSIS IN CATTLE.

By Professor B. Bang, of Copenhagen.

Translated by M. Ustrup.

(Continued from page 562).

My experiments on the cows No. 18 and 19 was, as I have said, principally to throw light upon the question as to *how small a dose may be used with the view of getting an unmistakable re-action in a tuberculous cow.* It appeared that very small doses did indeed occasion a re-action, but even in these very tuberculous beasts it was so slight that it cannot be called quite satisfactory, and when I compare these experiments with my first experiment at the cattle market where I, in a cow not very tuberculous, got only the slightest effect after an injection of 0·20 ccm. I venture to say that doses smaller than 0·05 or 0·10 ccm. should not be used when one intends to test the remedy on a cow which is supposed to have a more advanced tuberculosis, and *not less than 0·30 ccm. for a full-grown cow, when desiring to discover tuberculosis in its beginning.* For a calf a few months old no doubt 0·10 ccm will prove to be a suitable dose. However, I have made too few experiments to establish anything in this respect. In calf No. 17 an injection of 0·20 ccm. gave a suitable re-action, but in No. 16 the same dose re-acted rather too violently, here it seemed that 0·05 might have been more suitable. My experiment with calf No. 15 proves that a dose of 0·20 does not in the least harm *healthy calves.*

The above mentioned observation that cow No. 18. after having re-acted perceptibly after an injection of 0·01., 0·04., 0·05 and 0·10 ccm of the lymph, did not re-act to 0·20 and 0·30 ccm., corresponds pretty well with what has been observed in human beings, namely, that patients comparatively quickly become habituated to the remedy, and can take increasing doses.

One more experiment have I had an opportunity of making, which appears to me pretty good to illustrate the value of the lymph in diagnoses of tuberculosis in cattle. An old and very small Swedish cow, No. 20, was bought on purpose to be used for dissection exercise at the High school. It was extremly meagre, and from appearances might well have been tuberculous, feeble râle sounds were heard in both lungs when it had been moved. Injections of Koch's lymph, first in doses of 0·05 ccm., and the next day in doses 0·30 ccm. did not, however, cause the least re-action, and on being dissected it was impossible to discover any traces of tuberculosis.

Cow No. 20—

28th Feb.	4 p.m.	39·0	2nd,	2 p.m.	38·6
	7	39·1		3	38·7
	11	39·0		4	38·6
1st March,	6 a.m.	38.8		5	38·5
	11	39·1		6	38·7
	3 p.m.	38·4		7	38·9
	7	38·8		8	38·7
	11	38·9			
Injection of 0·05 ccm.			Injection of 0·30 ccm.		
	1 a.m,	38·7		10	38·5
	3	38·7		11	38·6
	5	38·5	3rd,	1 a.m.	38·6
	7	38·5		3	38·6
	9	38·4		5	38·7
	10	39·2		6	38·5
	11	38·7		7	38·6
	12	38·7		8	38·5
2nd,	1 p.m.	38·6		9	38·8
				10.30	38·9

I have had opportunity, in two cases of trying the remedy on pigs. In the beginning of December I had a young pig 3 to 4 months old, thin and poor-looking, which sprung from a stock of which many had died of tuberculosis. It breathed quickly, namely, 44 to the minute, had a slight, dry cough, and the percussion sound was faint over the lower part of both lungs. The temperature was 38·5. In the course of the next two months it improved slightly, but still looked very thin and coughed much.

The 6th February, 2 p.m. I administered a subcutaneous injection of 0·05 ccm. of the lymph.

6th Feb.	2 p.m.	39 5	6th Feb.	9 p.m.	41·0
				10	41·0
	3	40·0		11	41·3
	4	40·0		12	41·3
	5	40·0	7th Feb.	3.30 a.m.	40·5
	6	40·0		4.30	41·7
	7	40·8			
				6	39·8
	8	41·1		7	39·8

7th Feb.	8	a.m.	39·5	7th Feb.	3	a.m. 39·8
	9		40·6		4	39·6
	10		39·5		5	39·5
	11		40·6		6	39·4
	12		39·5		7	39·5
	1	p.m.	39·5		8	39·5
	2		39·8			

The temperature was, during the following time, measured morning and evening, and was found to oscillate near 40·0°, namely, lowest 39·4°, and highest 40·8°.

The pig thus showed a marked and rather considerable re-action after the injection, the temperature five hours after, rising from 39·5° to 40·8°, and and fourteen hours and a half after the injection even reached 41·7°, whereupon, in the course of one hour and a half, it fell to 39·8°.

The pig was slaughtered the 1st of March. The section disclosed in the lower port of both lungs very large irregular caverns bounded by emaciated tissues. In the next place. large, greyish tuberculous pneumonic infiltrations, and numerous scattered tubercles in the lungs and pleura. Tuberculosis in the lymph-glands of the pharynx and in the cavity of the chest, large tubercles in the spleen; otherwise only slight tuberculosis in the organs of the abdominal cavity.

In February, a pig, about as old as the former, came occasionally under my observation. It might well be suspected of having tuberculosis, especially in the brain, it being thin in appearance seemed not to improve in condition, and had fits very often in which, for a long time, it ran round in a circle.

The 22nd February, 9 a.m. I injected it with 0·05 ccm. of the lymph.

19th Feb.	evening		39·5	22nd Feb.	6	p.m. 39·5
20th,	morning		39·4		7	39·7
	evening		39·4		8	39·6
21st,	M.		39·0		9	39·3
	E.		39·6		10	39·0
22nd Feb.	9	a.m.	39·5		11	39·1
			——	23rd,	M.	39·4
	11		39·5		E.	40·2*
	12		39·6	24th.	M.	39·4
	1	p.m.	39·5		E.	39·0
	2		39·5	25th,	M.	38·8
	3		39·5		E.	40·5*
	4		39·4	26th,	M.	39·1
			——		E.	39·6
	5		39·0			

This pig thus did not re-act at all to the injection. In conformity with this, in the section which took place March 1st, I found *that the pig nowhere in the body had the least vestige of tuberculosis.*

These experiments which have been described in detail, have thus, like those carried out in other countries, shown the result that *healthy* animals are not perceptibly affected by a subcutaneous injection, even in considerable doses, while tuberculous animals are affected in a characteristic way by suitable doses. the temperature of their body increasing a few hours after the introduction of the remedy and remaining high during several hours, on an average about twelve hours, sometimes shorter or longer. A few of my experiments have even shown that the remedy works as a very good re-agent for tuberculosis in cattle, the injection of it having caused a typical re-action in cases in which it would have been impossible to detect the tuberculosis by any other means of investigation. The numbers of experiments made are not few, and the result is in the main, always so conformable that there is good reason to conclude that the remedy will, as a rule, show this diagnostic faculty. It may not be unlikely that future experiments will show that there are exceptions to this rule, as from different quarters it is asserted to be the case with human beings, but even should this happen, still it is probable that those exceptions will be so rare that they will not be able to do away with the usefulness of the remedy. According to what I have hitherto experienced I think I am justified in saying that in Koch's lymph we have a remedy which will afford us a most valuable aid in our struggle against tuberculosis in domestic animals, as it enables us to recognise the presence of this disease much earlier, and with more certainty then we have as yet been able to.

After my treatise had been sent to the press, the cow No. 18, which was for the first time injected February 14th, was on March 7th killed. The cow had fallen off considerably in appearance and strength, scarcely ate anything, had severe diarrhœa, and was frequently feverish, the temperature rising a little above 40·0°; the pulse changed between 60 and 84, the respiration between 24 and 40.

At the *post-mortem* examination I found on both lungs, but especially upon the right, as well as on the right wall of the chest, several partly caseous calcified pearlnots, the largest being the size of a hen's egg. Both lungs were the seat of a considerable interstitial emphysema. In the left lung a few small caverns containing purulent matter, the afferent bronchia were extended and ulcerated. *Besides this both lungs were scattered all over with immense masses of grains and small tumours.* The most of these tumours had the size of a hemp seed to that of a large pea; in the centre of a great many of them a yellowish, half-dry, freshly caseous spot was found, surrounded by a greyish tissue, which dissolved itself into submiliar grains. In other tumours no caseous degeneration of the centre was found, but small tumours were also found, which seemed quite to consist of submiliar grains. In many cases it was apparent that the tumours had grown round small bronchia, the tube of which was partly choked up with caseous masses. Some tumours reached the size of a nut, or a little more. and were to a great extent caseous. Thus, even if there was a difference in the size and appearance of the tumours, yet one got the impression that the greater part were about of the same age, which might only be inconsiderable.

The whole appearance differed a good deal from the usual chronic pulmonary-tuberculosis in cattle,

* At both these times the pig had a fit, it ran round in a circle for hours.

and it is my opinion, that for the greater part, it can most naturally be explained as a result from an invasion of tubercle-bacilli in the walls of the small bronchii, and the lung-tissue nearest to them; which, if not, contemporaneous had yet taken place within short time. *Microscopical investigation* of sections through the tumours, also confirms the apprehension of the appearance as a subacute process, as the tumours all the way through appear to consist of tuberculous tissue abounding in tubercle bacilli, which are partly spread in the tissue (parenchyma) and collected by the hundred in the numerous giant-cells.

In the lymphatic glands of the cavity of the chest, were found enlargement and rather small caseous-degenerated tumours. A few similar ones were seen in the liver, in the abomasus a great many hemorrhagic erosions, through the whole intestinal tissue, a mass of tuberculous sores, which, esespecially in the lower part, had an uncommon extent and were plainly in an advancing state, on the ileo-cœcal valve was a deal of hyperæmia and considerable œdema, in the intestinum cœcum and intestinum colon were found a few tuberculous sores. The mesenteric glands very much swollen, with caseous degeneration. The udder very large, the three glands atrophic but otherwise apparently healthy. The fourth gland, (the hind gland) was considerably enlarged, and the seat of a diffuse tuberculosis, which mostly had a fresh appearance with transformation of the lobules into a firm greyish tissue, without caseous degeneration. A great part was reddish (dirty red), and here, in the veins, large, rather fresh greyish-red thrombi, which appeared to contain a mass of tubercle-bacilli. The lymphatic-gland above the diseased lactic-gland contained large, fresh-looking tuberculous tumours.

This case seemed also to imply that an injection of Koch's lymph in an animal which suffers from advanced tuberculosis can intensify the disease. Future investigations must enlighten us as to how far this, also, may sometimes happen in less advanced tuberculosis. Should this appear to be the case, it is obviously necessary to be rather *careful* in the administration of the remedy under conditions; where great importance is placed on the economical profit, which can possibly be had by fattening animals which have to be discharged from a stock. But if the *diagnostic* quality of the remedy only continues to hold good, still there will be use enough for it, namely, in all those cases where it is of importance to obtain certainty that breeding animals, and calves which have to be reared are perfectly exempt from tuberculosis.

The past year's imports of foreign live-stock and dead meat from Canada and the United States into Liverpool comprised 207,338 cattle, 27,004 sheep, 873,111 quarters of beef, and 185 carcases of mutton. The previous year's imports were 166,227 cattle, 34,369 sheep, 685,328 quarters of beef, and 613 carcases of mutton. There was thus an increase of 41,111 head of cattle and 187,783 quarters of beef, but a decrease of 7,365 sheep and 428 carcases of mutton.

VETERINARY SOCIETIES.

THE YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

The Spring Quarterly Meeting of the Association was held at the Queen's Hotel, Leeds, on April 24th. The President, Mr. T. C. Toope, Knaresbro; occupied the chair, and Dr. Cameron, the Medical Officer of Health for Leeds, and Dr. Oliver, Leeds; were present as visitors. The members of the Association attending were Messrs. Pickering, Deighton, and Snarry, York; Jas. Cooke, Scarbro; W. Lodge, Dewsbury; J. Appleyard, Halifax; J. S. Carter, Bradford; J. M. Axe, Doncaster; B. Smith, Barnsley; T. Pratt, Ripon; R. A. Philp, Hull; W. Clough, Morley; T. Snarry, Malton; F. Thompson, Harrogate; and R. L. Robertson, A. W. Mason, G. E. Bowman, T. B. Exley, F. W. Somers and the Hon. Secretary, Leeds. Apologies for non-attendance were received from Prof. Williams, and Messrs. A. W. Briggs, Whitehead and Hodgman.

New Members.

Mr. Bowman proposed Mr. F. Somers, seconded by Mr. Mason. Carried.

Mr. Scriven proposed Mr. Hallilay, seconded by Mr. Lodge. Carried.

Resignation.

The Secretary read a communication he had received from Mr. A. Gledhill, resigning his membership on account of leaving for the South of England.

The resignation was accepted with regret.

The minutes of the annual meeting were confirmed.

The Election for Council.

Mr. W. F. Greenhalgh, (hon. sec.) stated that a special meeting of the Association was held on the 24th March, when it was resolved on the motion of the President, seconded by Mr. Bowman, that Mr. Mason be the chosen candidate of the association in the election for Council, and that the election should be conducted in conjunction with the Lancashire Association's candidate, as had been the case heretofore. Since that meeting he had received a communication from the North of England Association, asking to be allowed to amalgamate with the Lancashire and Yorkshire Associations with regard to the election. He had been in communication with the President, and Secretary of the Lancashire Association on the subject, and as they were in favour of the triple alliance, he had taken upon himself the responsibility of agreeing with the request of the North of England Association. Their Association would be the gainer in every way, for the election would not cost them as much by £3 has it had hitherto done.

The President remarked that he had called a special meeting at the request of several members, for the purpose of nominating a candidate if they thought it was necessary. He first of all ascertained the opinion of the meeting, which was a fairly representative one, as to whether some measure of reform was not absolutely necessary, and the meeting was of opinion that some reform was necessary. The result was they nominated Mr. Mason as their intended representative. He hardly thought any further explanation was necessary. He very much regretted that he would have the unpleasurable duty of voting against his personal friends. His view of the matter was this: Certain members of the profession were putting themselves forward, or rather being put forward for council however, and they de-

clined to state their views on the great changes that were suggested by certain members of the profession—radical changes—and therefore he should vote against them. He thought most of the members of the Association would vote for those gentlemen who were pledged to reform. Their Secretary had acted without the sanction of the association in regard to the North of England Association, and therefore he moved "That the action of the hon. sec. in the matter of the North of England Association amalgamation be approved."

Mr. PICKERING thought some reform should be made with regard to the election of members of council. It was not right that some of the old members should be put entirely on one side because they refused to express their opinions. Many of them were very good men. He thought they ought to have some reform, not only in regard to the dual appointment, and the election of members, but also with regard to the fellowship degree. Every member should be able to elect members of the council, and every member of the profession should also be eligible. He thought they ought to vote for the best men, irrespective of the seven names put forward by the association.

Mr. DEIGHTON seconded the motion.

Mr. LODGE in supporting it, said he did not agree with the remarks of Mr. PICKERING. He thought that when a candidate for the council refused to express his opinion on the burning questions of the day they were justified in not voting for him. (Hear, hear).

The resolution was carried.

On the request of the President, Mr. MASON read a statement as to his views, which has already appeared in *The Record*. That was really the substance of the matter. He would be glad to answer any questions put to him on the "Burning questions of the day."

Mr. PICKERING said he would like to ask Mr. MASON whether he knew that some of the other nominees had refused to vote for the improvements with regard to the 9th clause, the dual appointment, and the election of council.

The PRESIDENT:—They are leaving us blindfold altogether.

Mr. MASON said he felt his position when he saw such names as Professors AXE, PRITCHARD, and others who had done such good work in the past, but now refused to enlighten them. At the same time he thought whatever their views were they might have had the courtesy to express their views to the profession. Not one of them had made the statement, with perhaps the exception of Professor PRITCHARD, and as to that, he was not quite sure.

BACTERIA.

Dr. OLIVER exhibited a number of gelatine tubes containing the bacteria of cholera, anthrax, swine fever, etc., etc. Koch's tuberculin which he had obtained recently from Berlin.

The PRESIDENT was sure their thanks were due to Dr. OLIVER for having brought these interesting specimens. If he would kindly exhibit some at the next meeting, they would be very glad to provide a number of microscopes.

Dr. OLIVER:—I shall be very glad.

SPECIMENS.

Mr. DEIGHTON:—The heart of a thoroughbred horse weighing 16 lbs. He said the animal was ill for two months, during the whole time it ate voraciously, but died a veritable "bag of bones."

Mr. COOKE exhibited a section of the brain of a cow that had died from parturient apoplexy. It was taken ill at 8 in the morning and died at 8 at night.

The PRESIDENT said he saw a horse's heart of enormous size some years ago. It looked like a huge lump of fat. The cause of death was actual rupture of the right ventricle. The specimen Mr. DEIGHTON had brought was unique.

The PRESIDENT:—You will remember that at the last meeting we had a discussion on the subject "Is the flesh of cows in the early stages of milk fever fit for human food." Our friend, Dr. CAMERON, took a view on the matter opposed to our opinion, and with the opinion held by the majority of the members of our profession. He gave us a lengthy address in explaining his reasons why he considered this flesh was not fit for human food. I, myself, submitted that it was fit for food if the animal had been killed in the early stages of the disease. Having heard and also read Dr. CAMERON's remarks, I can only say he has not convinced me that I am wrong. I don't know that there is much further I can say on this matter, except to point out one thing which Dr. CAMERON drew particular attention to. That was as to who was to say when an animal was in the early stage, or in the later stage of milk fever. I maintain milk fever is entirely a misnomer. It is easily distinguishable from septic disease, and is absolutely distinct.

Mr. G. BOWMAN:—I am afraid I have very few remarks to make upon this subject, in addition to what I stated at the last meeting. In my opinion where a cow is killed whilst suffering from milk fever, and the internal organs are healthy and the flesh firm and of a good colour, I see nothing to prevent it being used for human food. I don't see how it can possibly be injurious to anyone. It is due to no microbe or anything of that description. There can be no doubt that this is a serious matter, not only to the owners of cattle, but to the community at large. If this meat is fit for food, it is robbing the owner of cattle, and robbing the poor people of cheap beef, and it is a loss in every way. Since the last meeting I have been consulted as to giving certificates as to the suitability of these carcases for food, but I have declined for the simple reason that Dr. CAMERON takes no notice of such certificates. Practically our opinion is held by that gentleman to be worth nothing at all.

Mr. MASON:—It is a matter of regret we could not thrash out this matter at the last meeting, when we had worked ourselves up to a pitch of enthusiam. We had able men on both sides to discuss the question. The one point of all others that strikes me, is that no evidence has yet been produced as to the consumption of these carcases having done any harm to the human subject. Because in some stages of the disease the animal produces dark coloured flesh, I don't think we should of necessity consider that any putrefaction injurious to the meat consumer had set in. I think, to some extent, the case may be met in this way. We can certify that an animal is supposed to have suffered from "a disease." I take it there are, as we know, certain stages of milk fever. If a cow is killed whilst in the early stage, it is impossible on an inspection of the carcass, to tell what it had suffered from. I don't think the present system of wholesale condemnation of the carcases should be continued.

Mr. COOKE:—I have seen a good many of these cases in my time, and I have seen the animals slaughtered and the flesh used for human food, but I have never known of any ill result from it. If an animal is killed in the early stage, providing it has had no poisonous medicine, such as sulphuric ether to damage the flesh, I see no reason why it should not be used. On the other hand if the animal has lain for a certain time there would be a certain amount of risk. It would be rather difficult to draw a hard and fast line as to the exact time an animal could be considered in an unsuitable condition for eating purposes. For my own part I would not agree to it being slaughtered for human food after it

had lain 11 or 12 hours, or longer. I should not care to eat it myself, or to give it to anyone else. The circulation becomes sluggish, and especially at the extremities, and there is a liability to rapid decomposition, more especially in hot weather.

Mr. PICKERING:—One very important question requires answering before we express any opinion with regard to this disease. The term "milk fever" is one given by cow-keepers and farmers generally to every animal that falls down, at or about the time of calving. I should say in parturient fever proper, when you have a rise of temperature, and where the system generally is affected, I should say that animal is unfit for food. In any form of parturient apoplexy, often in the case of a cow with a third calf, where the animal is a deep milker, and she is in a very coarse, fat, and high condition, and where she has had large quantities of medicine, usually a few pounds of treacle and a dose of salts, such an animal would not be fit for food. But in cases where the cow has the apoplexy form, where it falls down suddenly, I bleed the animal at once, and if it is valuable, and has not had any medicine, I advise that it be slaughtered, and after an examination of the flesh, I should say it would be fit for food. If the animal has not had medicine and the disease is apoplexy, I think it is fit for food, but if it is due to the septic form, and the animal has lain for two or three days, I think it is unfit.

The PRESIDENT:—I don't recognise the septic form as milk fever.

Mr. PICKERING:—I say there are three forms commonly recognised as milk fever, although of course it is a mistake.

Mr. LODGE:—I consider if a cow is killed after suffer- 12 hours, it is fit for human food. I have seen the flesh rather dark in colour, and I have tested it with the litmus paper test, and I have never found anything wrong with it. It has always given an acid reaction. In cases of milk fever you find the flesh is firm if of dark colour. Septic flesh is very soft, and very flabby on the inside. There is a very great difference between the two. I have never heard of milk fever flesh doing any harm.

Mr. SMITH:—The question is—defining what you mean by milk fever. Milk fever is a thing which, in my opinion, affects every beast at the time of calving to a greater or less extent. I consider this flesh is perfectly fit for human food in the early stage.

Mr. AXE:—In cases of parturient apoplexy if the beast is in good order, and the flesh firm, I consider it fit for food. In cases of septic fever, the animal should be killed and the carcase burnt.

Mr. J. CARTER:—I have had a large experience in cases of parturient apoplexy, or milk fever. Milk fever is an accepted term in this part of the country. With regard to the septic form, it had nothing to do with it. During the last 50 years I have never heard of any harm arising from eating this milk-fever-meat, under the conditions described. I have eaten the meat many times and it never did me any harm.

Mr. PHILP:—When we see that a case of milk fever in Hull, is going to be hopeless, we recommend it to be slaughtered, and we have never had any difficulty in getting them into the market. I have never heard of any ill effects from eating the food.

Mr. BOWMAN:—Do you kill them to save their lives. (Laughter).

Mr. LODGE:—Mr. Philp said, when it was "going to be" a hopeless case, not when it was one.

Dr. CAMERON, (Medical Officer of Health for Leeds):—I am obliged to you for having given me the opportunity of hearing the views you have to-day expressed. I must say Mr. Pickering's remarks have been a matter of surprise to me. I think he agrees with me distinctly in what I said the other day when I remarked "I do not know what milk fever is." There are three or four different diseases called milk fever. What I said was this "I don't suppose members of your society would use the term puerperal apoplexy in anything except its correct signification. The particular disease is as distinct from septicœmia as small-pox is from scarlet fever. There are cases of small-pox where it is difficult to ascertain whether you are dealing with small-pox or measles. It strikes me as possible that there may be cases of what is at first called milk fever, which may turn out to be some one of the many forms of septic disease. I take it for granted the members of your profession are able to distinguish cases of parturient apoplexy from cases of ordinary septic disease, or from the mild form of milk-fever referred to by Mr. Smith, which takes place to a certain extent in parturition. Now the term parturient apoplexy is a term which way be applied in the first instance to describe a group of symptoms. A man tumbles down in the street unsconscious and with certain other symptoms which we call apoplexy. When we come to examine the man we find there is a clot of blood perhaps on the surface of the brain, or perhaps a clot of blood in a vessel of the brain, and we use the term apoplexy to signify in a secondary way the cause of these symptoms. We speak in the same way of parturient apoplexy. You perhaps use the word apoplexy not to signify the pathological condition, but to signify a disease in which a cow loses its power of its hind limbs, cannot rise from the ground, has certain nervous symptoms, insensibility or delirium, and in which there is a sudden stoppage of the milk, &c. you use a term to signify a group of symptoms. As to the pathology of this disease, veterinarians differ. Gamgee and others declare that this parturient apoplexy is due to specific infection. A different infection from the ordinary infection of puerperal septicœmia. Barlow and Professor Williams, and the gentleman whose death you deplored at the last meeting, the late Professor Steel, maintain that it is due to nervous disturbance, while Franck, Fleming and others say it is practically due to a form of blood poisoning arising from a condition of the animal as suggested by Mr. Pickering. Here we have a certain definite disease. You would not go so far as to say of every animal suffering from parturient apoplexy that it is going to die. Probably some of them would recover. There is, however, a tendency to death, and the majority of you say "This animal would run such a poor chance of getting better, that the best thing is to kill it, and sell it." If the animal was quite certain to get better—if it was like the ordinary form of milk-fever Mr. Smith spoke of—you would not kill it. If you kill it it is a certain loss. It will not realise as much for meat, but you kill it to do away with a greater loss by its dying. The president says that my arguments would apply to the flesh of all parturient animals. To some extent they would, but there is a difference in this case. A parturient animal, as a rule, is not making for death, it is making for recovery; but you finish the matter with the knife. As a matter of fact I find so many different opinions amongst distinguished veterinarians, that the position I take is the position I think I ought to take for the sake of the public health. You say these animals are sent into the market, and we don't know anything as to any bad result following from this consumption. There were 8,370 deaths in Leeds last year. How many of these were due to eating the carcases of parturient animals I am quite unable to say. Out of that number at least 5000 were persons who were of the meat-eating age. The remaining 3000 were children under 5 years of age. I can't trace the meat of a cow suffering from this disease. The meat is distributed to the heads of families in all parts of the town, it is not distributed to one distrist. We can sometimes trace a cholera outbreak from water,

or typhoid from milk. The milk or the water can be traced to certain houses. This meat, however, is distributed in small bits here and there. I will not say everybody who may eat this meat will suffer from disease. A person eating tuberculous meat may not of necessity suffer from tuberculosis. What I say is the risk is too great for me to allow anybody to run it if I can possibly hinder it. The risk may not be so great as in the case of tuberculosis, for we know we can produce that disease by feeding an animal on tubercular matter. It has not at all been proved that this is a microbic disease, but then it has not been proved that it is not. We did not know 20 years ago that tuberculosis was a microbic disease. Many people don't believe that scarlet fever and small-pox are microbic diseases. We know it is a disease making for death, that the animal is having its cell power overtaxed, and I say my own feeling is that meat containing the products of that down grade metabolism is meat unfit for human food, and I mean to do all I can to prevent its entering the market. I hope the members of this profession will assist me. I regard it as a matter in which we should help one another. I hope, whether you are convinced of the danger of eating this meat or not, that you will do whatever you can to persuade every cowkeeper to allow you, instead of killing your patients to attempt their cure.

Mr. LODGE :—I don't think it is fair to assume that because 8000 deaths have occurred, they were owing to eating this food.

Dr. CAMERON :—No, I don't, for one moment.

Mr. LODGE :—You said this had occurred among flesh-eating people. I should like to know if it is not more likely to be produced by diseased fish and game. Dr. Cameron says—when we poor veterinary surgeons go a little more into the pathology of apoplexy, as we don't seem to understand it—he would condescend to help us.

Dr. CAMERON :—Mr. Lodge has entirely misunderstood me in both matters. What I said was there were 8000 deaths in Leeds last year. I don't know that I attributed one of those deaths to eating this meat. I can't pick out amongst these deaths and say whether any of these deaths were the result of eating this meat, I don't know—I simply say I can't pick them out. The other matter is quite as great a misapprehension, I mean as to the pathology. I don't say that the poor veterinary surgeon is ignorant. I say we—you and I—as scientists and pathologists, do not know the pathology of parturient apoplexy. Gamgee says one thing and Franck another, whilst Steel says another. All these eminent men in your profession are at sixes and sevens as to what the pathology is. These men differ as to what is the cause of it. They are differing as to the disease we have to deal with. I don't throw it out as any stigma upon your profession that you haven't settled this question at all. There are a number of unsettled points in human pathology, but what I do say is that as a Medical Officer of Health, I have to consider the benefit of the greatest number, and as far as I have power, I shall try to prevent meat which I believe to be unwholesome from being offered for sale in Leeds.

Mr. PRATT :—I have read many works on the subject, and I could not conscienteously order any diseased animal to be slaughtered for human food.

Dr. OLIVER :—One matter has not been gone into in this discussion. Several speakers have spoken of a rupture of a blood vessel of the brain as having caused parturient apoplexy, and have spoken of that as the commencement of the disease. Now supposing a blood vessel of the brain ruptures there is some cause for it. You have a cow with its blood fully charged with waste products. There is something worse than that. There is something in the blood which has caused the vessel to get diseased. There is nothing in the fact of a cow having a calf inside her to affect a section of the brain. The vessels in the brain must be affected by the blood stream, and if the vessel ruptures we must conclude the blood stream is altered, or it could not occur. The direction in which further knowledge is wanted is—what are the alterations in the blood which cause this vessel to rupture?

The PRESIDENT :—I would like to state my theory as to the cause of parturient apoplexy. I look upon it as a condition of mechanical congestion. The congestion occurs in this manner. After the process of parturition when the womb contracts, the blood supply is thrown upon the system. The vessels of the mammary gland not being sufficient to relieve it keeps it in the system—instead of being transferred from one organ to the other it is thrown upon the system, and the system is charged with blood, and all that is necessary to cause them to give way is the excitement of calving. Dr. Cameron has been the means of introducing a considerable amount of milk-fever flesh into Leeds. Personally, I do not give certificates in these cases, and he could not find out easily, whether he has a milk-fever case to deal with or not. Since our last meeting no less than five milk-fever carcases have come from my district into Leeds without my certificate, but I have seen them and considered they were fit. If I had given my certificate in all these cases they would have been destroyed. I do not believe there is the slightest reason to think it is unfit for food. As the result of our discussion I propose "That in our opinion the flesh of cows in the first stages of milk-fever is fit for food." I mean in the mechanically congested condition I have described in parturient apoplexy.

Dr. CAMERON :—May I suggest—I know what the effect would be, I should not like it to go forth in Leeds in the form in which it is proposed. To the cowkeeper it will mean every kind of disease they commonly call milk fever.

The PRESIDENT : I will alter the resolution to the following." That in our opinion the flesh of cows in the first stages of milk-fever or parturient apoplexy, is fit for food."

Mr. LODGE seconded this, and it was carried with only one dissentient—Mr. Pratt.

The PRESIDENT :—I trust Dr. Cameron will see fit to accept their certificates. If he does not he will most certainly get more cases in Leeds than he ever had.

Dr. CAMERON :—I have listened to this discusion and I have not heard a single argument to induce me to alter my mind. My position is this: as representing the health of the town, if I can prevent that meat from entering the town I shall. A vote can't alter my opinion: argument may.

The PRESIDENT :—I move a vote of thanks to Dr. Cameron for coming amongst us (Hear, hear).

Dr. CAMERON !—To get "slated." (Laughter).

The PRESIDENT :—I don't think our discussion will give rise to any ill feeling among the two professions. (Hear, hear).

Mr. LODGE seconded this and it was carried unanimously.

Dr. CAMERON :—I thank you very much for the way in which you have received me. It is a great pleasure to talk over things with scientific men in a scientific manner. I think we ought to meet as brethren studying a honest and honourable profession; veterinary medicine and general medicine are two parts of the same thing. The pathology we learn from you is the greatest possible service to us. The experiments we have had to make upon animals have been of the utmost value to us in learning physiology. Our profession is a little older than yours, and as members of the two

branches of the profession we ought to help one another all we can.

Mr. GREENHALGH moved and Mr. AXE seconded a vote of thanks to Dr. OLIVER.

Dr. OLIVER returned thanks.

Mr. PICKERING gave notice that at the next meeting he would move that medical men be admitted hon. members of the Association.

A vote of thanks to the President terminated the proceedings.

W. F. GREENHALGH,
Hon. Sec.

EXTRACTS AND NOTES.

ALLEGED STARVATION OF HORSES.

THE R.S.P.C.A., *v.* E. J. SEWELL.

(Continued from page 552.)

THE DEFENCE.

Mr. Dutton said:—I am thankful, Sir, that the case for the prosecution is ended, for I now have the opportunity of placing before you and the public an answer to the charge which will vindicate my client's good name, and secure an honourable acquittal. I may observe that it is a remarkable coincidence that, with few exceptions, the professional witnesses called by the prosecution are to a certain extent his rivals in business. Mr. Talbot was the man whom Mr. Sewell had supplanted at the Stores. Mr. Bignold was compelled by his own letters to admit that he did not regard Mr. Sewell with any kindly feelings. As to Professor Pritchard I am glad he is present to hear my remarks. I do not say he has deliberately stated that which is false, but I do say that he has made most cruel and reckless statements as to the condition of one of the stables—that at Crescent Mews. He swore that all the mangers were all gnawed to pieces. Why, Sir, they are all there to this day, and most of them are made of iron!

Mr. Colam:—This is a mistake about the name of the stable. It is admitted that in one stable the mangers were gnawed.

Mr. Dutton:—Why was Professor Pritchard called at all? He is a member of the Council of the prosecuting Society—the Council that sat in judgement on the case. He admits that it was partly on his report that the prosecution was instituted, and yet he gives evidence as an impartial expert. How much fairer and better would it have been had the Society not brought as a witness a man who had taken such a prominent part in the initial steps as Professor Pritchard had.

Now, Sir, what are the facts. Mr. Sewell was entrusted with the charge of these horses, and at once drew the Managing Director's attention to their wretched condition, advising that those affected with mange should be isolated and treated. He hired the stable in Crescent Mews for their reception, and on January 7th the first seven horses arrived. It will be shewn conclusively that all these were diseased, and that four of them were very seriously affected aud in a wretched condition. On January 9th three more horses arrived, but these did not come from the Stores. They came from Mr. Talbot's infirmary, and at any rate one of them had been suffering from mange since November 29th. That horse, Sir, is the grey which died on February 4th. On January 15th six more horses came to Mr. Sewell, and were placed in the stables at Feltham Mews. Now a good deal has been said as to the condition of these stables, and I do not say the witnesses have deliberately sworn what was false, but I consider they must have been led away by a feeling of the importance of a conviction. I shall ask you, Sir, to visit these stables and to judge for yourself of their fitness for the purpose. As regards Crescent Mews I shall prove that it is well paved, drained, and ventilated, that it contained seven iron mangers and one wooden one—all of which are still there. With regard to Feltham Mews I may say they were occupied by Mr. Humphrey, the horse-dealer, for twelve months before Mr. Sewell took them. It is true the mangers were old and damaged, but they were repaired from time to time by a carpenter, who will be called, and it was only at the end of the tenure that they were entirely removed as useless, and boxes substituted as receptacles for the food. As to the forage, Mr. Sewell had paid £30 10s. for forage for these horses, and the men who delivered the corn and hay would be called, and every account produced. The two horses that died were old animals, and so affected with the disease that hardly a particle of hair was left on their bodies, except the manes and tails. The weather during January was exceptionally severe, and both animals were received in a wretched condition. I shall shew by the very highest authorities that the very fact of these horses being hairless is proof of the frightful extent and degree of the disease. Professor Pritchard might say one thing, but I am going to call Dr. Fleming who is equally eminent in his profession. When such men disagree how is a layman to decide? These two gentlemen are both members of the Council of the prosecuting Society, yet their evidence is absolutely contradictory.

Mr. Dutton then proceeded to examine the evidence of the witnesses for the prosecution in detail. After which he said:—I may mention that Mr. Sewell was taken seriously ill on January 27th, and was confined to his bed till February 6th, when he got up and went out against advice, owing to what his assistant had said as to the death of a horse on the 4th, and the visits of the officers to the stables. Mr. Sewell was charged with an offence on February 3rd (at the time he was confined to his bed), and in legal strictness the prosecution could not have gone into anything which transpired prior or subsequent to that date. I made no objection because our desire is to meet this charge only by answering it in the fullest and most complete manner. The issue is of vital importance to all concerned. If Mr. Sewell is guilty of this infamous charge he is not fit to belong to the honourable profession in which he is enrolled. The mere fact that this charge has been made, and the publicity given to it has already done him terrible harm. More than that it has done the cruelest injury to his two brothers who both practice in London independently of each other, and who have been confused with my client. They and other members of the family feel most acutely the aspersion on a name which for generations has stood in high and honoured repute in the profession and outside of it. We do not, Sir, ask for mercy, we do not ask for leniency. If you say my client is guilty I shall not ask you to impose a fine—send him to prison—for that would be fitting punishment of anyone so mean and so cruel as to put money in his own pocket by starving dumb animals entrusted to his care. I have such a consciousness of right that I feel certain all the misrepresentations will be cleared away and explained, that my many witnesses will testify to the truth, and I know as well as I am standing here that my client will be honourably acquitted, and be entitled to the sympathy of every honourable man.

Alfred Fish sworn and examined by Mr. Dutton said: I am the owner of Crescent Mews stables, and let it to Mr. Sewell on January 16th last for £7 a month.

The Magistrate here interposed by offering to visit the stables, and it was arranged that this should take place on the Monday.

Alfred Fish, continuing, said before Mr. Sewell had the stable it was occupied by Mr. Wragg, a large jobmaster who kept from eight to ten horses there. No occupier of the stable has ever complained to me concerning it. When Mr. Sewell took it there were eight mangers and seven were of iron. They are there now, and nothing has been done to the stable since he left, except white-washing the walls.

Richard Jones said:—I am a forage dealer, and delivered forage to Feltham Mews and Crescent Mews for Mr. Sewell in January and February last. The bill has been paid, and amounted to £15 0s. 11d. All the goods mentioned were delivered at the stables.

Cross-examined:—I made out the account myself from my books. I have not my books here, but they can be produced. I do not know if the amount of forage varied—if more were sent towards the end of the period than at the beginning. I never went round to the stables myself.

George Bryant said:—I am a carman in the employ of the last witness. I delivered forage to Mr. Sewell's stables on several occasions in January and February last. I generally went between eight and nine in the morning.

Cross-examined:—The forage was delivered as ordered. We do not use delivery notes except for coals.

William Billings said:—I am a corn-dealer, and supplied Mr. Sewell with forage in January and February. I supplied good stuff, and the bill amounted to £15 4s. 5d. I have the delivery notes signed by Mr. Sewell's men for all the forage.

Charles Feltham said:—I am a builder, and the stables at Feltham Mews belong to me. I built them in 1876, and with the exception of a few months they have been constantly occupied ever since. I have never had any complaint from my tenants. The place is well drained and ventilated.

Thomas Drury said:—I am carman to Mr. Jones, and delivered forage at both the stables referred to.

Thomas Moore said:—I am a Carman in the employ of Mr. Billings. I delivered forage on several occasions last January and February to the stables mentioned. I had delivery notes. I noticed the horses at my visits, they were tied up. I saw none loose. They had bedding which was sometimes swept into heaps.

Cross-examined:—I put the forage in the stable where I was told. I think the horses were always tied up when I was in the stables.

Frances Andrew said:—I am a carpenter and builder, on January 7th I was at Crescent Mews, putting up some bales and repairing some stalls, when seven horses arrived. I noticed one was in very bad condition—quite bare on shoulders and hips. All the others were more or less in bad condition. I saw the horses taken in and tied up, they were then fed and bedded down—the beds were down before they came. I once was at Feltham Mews. Mr. Sewell's assistant called me to assist in getting a horse up. There were five or six horses in the stable, and they were well bedded down.

Donald Andrew:—I am son of the last witness. I was in both the stables on two or three occasions. I never saw any horses loose, nor smelt any objectionable smell.

Henry Patching:—I am a carpenter. I put up a manger in Crescent Mews stable on January 8th. I was there from 3 p.m. to 10 o'clock. I noticed the horses which were very poor, and the hair was off them in large patches. The were very restless, continually rubbing and gnawing themselves. A boy with me was frightened. Next morning I was there again fixing some bales. The stable was clean and I saw nothing to find fault with.

Cross-examined:—I was there as a carpenter. I was not there to examine horses. I worked as a carpenter in the stables of the General Omnibus Company, and I think I know something about horses.

Albert May:—I am a groom and was engaged to look after the horses at Crescent Mews. The horses were very poor when they came, and had mange. They were all bad, but one was worse than the others. Owing to the terrible condition of the horses I left my employment.

Cross-examined:—I was not told when I was engaged that the horses were mangy. I thought I should be required to attend ordinary horses.

Albert Muns:—I am a groom, and was in Mr. Sewell's employ on January 7th at Crescent Mews. I saw the seven horses arrive. They were suffering from mange, and were in bad condition both as to flesh and cleanliness. There were sores all over one. They all rubbed and scratched. I was succeeded by a man named Sterling, I afterwards assisted him to dress the horses, and the hair came off in our hands as we rubbed the dressing on. A gray was in very poor condition, it could not stand the same as the others.

(To be continued.)

TUBERCULOUS DISEASE OF BONES AND JOINTS OCCURRING SPONTANEOUSLY IN THE LOWER ANIMALS.

By W. Watson Cheyne, M.B., F.R.C.S.

From a lecture delivered at the Royal College of Surgeons.

Very little appears to be known about these diseases in the lower animals, and after searching much literature and inquiring among veterinary surgeons both at home and abroad, I only succeeded in 1888 (when I looked into this matter) in finding one paragraph in which there is any description of the disease, and that was in a paper by Ostertag on "Oertliche und allgemeine Tuberkulose," in the *Archiv f. wissensch. u. prakt. Theirheilk.*, xiv., 4 and 5. I may quote Ostertag's statement. He says, speaking of general tuberculosis in animals, that tuberculosis of bones and joints "is found chiefly in the dorsal vertebræ, ribs, sternum, and the long bones, or the hip and knee joints. The tuberculosis of the bone usually starts from the medulla, or the spongy portions of the bone, more rarely from the periosteum, and leads to the formation of greyish red granulation deposits, which attain a considerable extent by lacunar absorption of the bone. The centre of the growth soon undergoes caseation, and ultimately a cavity is formed, which frequently only shows a narrow border of granulation tissue. As a rule, only isolated deposits are met with, but it sometimes happens that almost half the dorsal vertebræ are affected. The process may spread to the joints from the epiphysis, but an osseous deposit is not necessary for the formation of a tuberculous arthritis. In swine I have seen two forms of tuberculous inflammation of joints—(1) an empyema articulare tuberculosum, in which the synovial membrane is infiltrated with tubercles, moderately reddened and swollen, and distended with muco-purulent—exudation;—(2) an arthritis fungosa, where the synovial membrane is swollen, and converted for the most part into a granulation tissue with tubercles

scattered through it, this tissue filling up the cavity of the joint without any great exudation into the joint."

From specimens which I have had the opportunity of examining, I believe that most of the so-called scrofulous joints of animals are not tuberculous but most probably rheumatic, but I have, through the kindness of Professor Schütz, of Berlin, obtained six specimens of the tuberculous disease of bones in the lower animals. [Photographs of five of these were shown.]

One section of the lower end of the humerus of the cow shows an extensive caseating patch in the medulla of the humerus, which reached as far as the articular surface, and had destroyed the cartilage over it. The soft deposit is surrounded by sclerosed bone, in which we see fresh tuberculous nodules, which apparently commence in the Haversian canals.

In another specimen from the sternum of the cow we see a considerable area of soft tissue, and also roundish soft caseating masses. The small masses are composed chiefly of more or less perfect fibrous tissue, caseating in parts, and showing a few small giant cells, with marginal nuclei. The smaller patches are evidently in the Haversian canals, and consist of a central artery, with greatly thickened walls, surmounted by some fibrous and cellular tissue.

The appearances in the sacrum of the cow are essentially the same. At the anterior part there is new bone and sclerosed bone, with here and there circular caseating deposits in it; at the posterior part the osseous tissue has disappeared, and in its place is a patch of soft tissue, in which are similar round caseating deposits. In some parts the bone has become absolutely dense.

In a specimen of the vertebræ of a pig the chief seat of the disease is in the laminæ. To the naked eye the tuberculous mass seems to be composed of an aggregation of small nodules. There are also deposits in the bodies of the vertebræ. In one of the bodies there is a cavity of considerable size, filled with cheesy material and opening on the surface. In a photograph of a section is seen, chiefly in the situation of the laminæ, the tuberculous mass which consits of fibrous tissue replacing the bones, the tuberculous deposits being in roundish groups, and clearly commencing in connection with the blood-vessels. There are generally two or three deposits in each group, and some giant cells, but not much caseation.

In a photograph of a fowl's tibia peculiar caseating patches are seen in the medulla of the lower end of the tibia, and two similar patches in the cancelli of the epiphysis. These patches are surrounded, more or less completely, by a reddish ring, and we find here and there in the caseous material smaller red rings, which are apparently composed of fibrous tissue, and are probably formed around the blood spaces. The specimen had been badly preserved, and did not stain well.

The general character of the disease in cattle is the formation of large and small roundish, caseating nodules in the substance of the bone, accompanied in the first instance by sclerosis of the bone. These nodules commence in connection with the blood vessels in the Haversian canals, or in the medulla of the bone. In the Haversian canals the walls of the blood-vessels are thickened, and in various parts we can trace all stages, from commencing thickening of the vascular wall to the complete development of a caseating tuberculous mass. The tuberculous growth evidently commences in and around the walls of the vessels, and soon becomes surrounded by a fibrous envelope. As it enlarges, the bone around becomes absorbed, and thus we come to have small and large round spaces in the bone, containing tuberculous tissue caseating in the centre: this caseous material falls out in preparing the sections. These deposits are not always round; in the process of absorption of the bone larger cancellous spaces are opened into, and thus we find elongated or irregular-shaped deposits. In these tubercules giant cells are not usually numerous nor large; and in the specimens which I have examined—which, however, were not well preserved—the bacilli were few in number. I have not met with sequestra in any of these specimens.

Brit. Med. Journal.

MACHINE-MADE HORSE-SHOES.

That the best hand-made still stand pre-eminent amongst horse-shoes may be admitted, but as they are the production of perhaps one farrier in a thousand we may safely welcome machinery whereby a shoe is turned out equal in all particulars to the average hand-made article, and superior to it in many.

To make a good horse-shoe either by hand or machinery requires — *First*, good iron—tough to stand working, and hard to afford durability. Such iron is equally available for hand or machine production. *Second*, a certain shape or form suitable for the horse's foot. A good farrier produces any shape he may require. Until recently machinery has been limited in its powers, but now any model can be produced with exactness. *Third*, an arrangement of nail-holes adapted to the peculiar form of the wall of the horse's foot, and so placed as to afford the farrier the greatest freedom in directing and driving the nails. This has hitherto been the specially weak point in machine-made shoes, which too often present a series of nail-holes all equally "fine" or "coarse" as the case may be, and all "pitched" inwards or outwards in such a way as to prevent even an expert man driving nails in the proper direction. When the manufacturers of machine-made shoes are in a position to meet these three requirements—good iron, suitable forms and sizes, proper nail-holes—we may safely look forward to their rapidly displacing the hand-made article.

There are two advantages possessed by machinery over hand-labour which must inevitably prevail—cost of production and uniformity of the product. The production of horse-shoes by hand is hard labour, and very expensive. Three men with anvil and hammers turn out 60 shoes per day; three men with machinery turn out 3,000 shoes per day. A really clever and careful farrier makes a shoe with

which no fault can be found, but the average man from want of skill or care falls far short of this standard of excellence, and so a large proportion of hand-made shoes show some defects, either in form, in bearing surface, or in the nail-holes, which render them causes of danger to the horse on whose foot they are fixed. Machinery on the other hand, when once it can turn out an unobjectionable model, can reproduce it in any quantity without variation—the produce of the machine is either all good or all bad, depending only upon the selection of a good model to start with.

The British and Colonial Horse-Shoe Company claim to have surmounted all difficulties, and to have machinery capable of making any shape of shoe. We have seen their works and their shoes, and must admit that their claim is well founded. At present they produce only three forms of fore-shoe and one style of hind, all of which meet the requirements we have laid down. The Company is under the management of Mr. Richardson—a patentee of various machines—and a man practically acquainted with the evolution of the whole business since the American engineer, Mr. C. H. Perkins, in 1858, first attempted the production of horse-shoes by machinery.

The process is very simple now that it is working smoothly, but great difficulties have had to be overcome before attaining the practical success of to-day. Rolled bars of iron, upon which is impressed the requisite form of foot and ground surface, are cut into lengths, and a hundred or two of them put into a furnace. From this, when sufficiently heated, they are passed to a machine which turns them into the shape of a shoe. Each shoe then passes to another machine where it is pressed into a perfect level, and then they are allowed to cool. When cold they are placed by a man, one at a time, under a stamp, and each nail-hole separately punched through. This operation leaves a burr on the foot-surface at each nail-hole, so they are passed through one more machine which planes the projections off, and leaves the shoe capable of being fitted to any foot by any farrier.

In mines and under other circumstances where cold fitting is compulsory, these shoes are incomparably superior to hand-made, being perfectly level, and wanting nothing but a clip and perhaps a little side adjustment to render them ready for application.

Mr. Richardson expects soon to enlarge the Company's works, and to add one or two more forms of shoes to those now made. He will then be in a position to meet the most varied orders, but in the meantime he is able to offer shoes suitable for all horses—from a pit pony or a mule to the hard-wearing omnibus horse.

ACTION OF ALOIN.

Professor Meyer has chemically and physiologically examined aloin obtained from Barbadoes, Curaçoa, and Natal aloes. Barbadoes and Curaçoa aloes yield an identical aloin, the former containing about 10 per cent., the latter about 16 per cent. Natal aloes yield about 14 per cent. of a different aloin. In experiments on animals and man the aloin was given *per os* and subcutaneously. For subcutaneous administration a solution in formamide was used—water may also be used for Barbadoes aloin, but the solution is more liable to decompose; the solution has a neutral reaction, and after injection causes burning pain for a few minutes but otherwise has no evil effects. The aloin can be detected in the fæces and urine by tests which are given at length and which are extremely delicate. The experiments showed that aloin from Barbadoes and Curaçoa aloes acted with certainty as a purgative, whether given by the mouth or subcutaneously. The dose in both cases is about the same, which is explained by the fact that aloin, when given hypodermically, is excreted from the blood chiefly into bowel, only a mere trace or none being found in the urine. In man, dogs, and cats there is no albuminuria after subcutaneous injection, but in rabbits—in which animals aloes does not cause purgation—subcutaneous administration is always followed by inflammation of the kidneys, albuminura, and death. Its purgative action is as slow when it is given hypodermically as it is *per os*. The resin left after extraction of the aloin from aloes is also purgative. Natal aloin was active in dogs and cats only after very large doses; but if an alkali were added to it—so as presumably to decompose it—its activity was greatly increased. By subcutaneous injection it was always active. In man on an ordinary mixed diet, given alone or with an alkali, it had very little purgative effect, but in man fed on an exclusively animal diet it was much more active. The reason probably is that in the latter case the putrefactive processes in the intestine are much more marked, and the aloin is decomposed into a more active substance. All the experiments seem to point to the conclusion that aloin itself is not an active purgative, but that it becomes gradually decomposed in the intestine into a more active body, and hence the slowness of its action.

A Legal Note.

The case of *Thorley v. Massam* has resulted in a decision which will be of interest although it does not come within the scope of agricultural law. It was a case which arose out of the will of the late Mr. Thorley, whose name is so familiar. The deceased gentleman left a part of his business in the hands of trustees. Now, a trustee cannot charge for his services unless the will gives him power so to do. Mr. Thorley, no doubt, very properly thought that it would be unreasonable to expect trustees to undertake the management of so large and important a business as his cattle food manufactory without some remuneration for so doing, and consequently he provided for their receiving some payment for their work. Thereupon the authorities stepped in and demanded legacy duty upon this money, and the court decided that such must be paid on the ground that as an executor or a trustee was bound to do his duty without payment, anything that was left to him was a legacy and therefore duty must be paid upon it.—*Farmer and Stock-Breeder.*

THE DIAGNOSTIC VALUE OF TUBERCULIN IN INTERNAL TUBERCULOSIS.

The experience gained in the different universities of Germany with regard to the diagnostic value of Koch's method are somewhat varied *(Die Wirksamkeit des Koch'schen Heilmittels, etc.)* Six of the professors of medicine—namely Leyden, Gerhardt, Biermer, Ebstein, Weber, and Quincke—are of opinion that the absence or presence of reaction after the use of tuberculin must not be regarded as absolute proof of the absence or presence of tuberculous disease in each case. Some of them record cases of undoubted tuberculous disease of the lungs, in which the bacilli could easily be found in the sputum, but in which neither the large nor the small doses of the fluid produced any evidence of reaction. On the other hand are ranged the names of Schultze, Lichtheim, Finckler, Schreiber, Rumpf, and Guttmann, all of whom are disposed to establish the method as an absolute means of recognising the presence of tuberculous disease in internal organs. Even the presence of such cases as those already referred to, where other evidences proved the presence of tuberculous disease without any doubt, are not held to shake the diagnostic position of tuberculin, even though no reaction follows its use, as the same occasional inertness in particular individuals may be recognised with other drugs also. It is in the early cases of phthisis especially that its value as a means of diagnosis is most clearly shown, since it is capable of producing reaction in a stage of the disease which may not have been sufficiently advanced to give rise to physical signs. In cases of external tuberculosis also, a considerable difference of opinion is to be noted, less so, however, than in the case of disease of internal parts. Bardeleben and Köhler, of Berlin, report considerable variations in the degree of reaction, etc., and are rather reserved in their verdict as to the diagnostic value of the method. Professor von Bergmann praises its utility as a ready means of distinguishing between tubercle, syphilis, and carcinoma. Professor Trendelenburg, of Bonn, found it trustworthy in all cases except those of tuberculous disease of the testicle. Mikulicz, of Breslau, and von Bramann, of Halle, regard the presence or absence of reaction as trustworthy; whilst others, such as König and Hildebrand, of Göttingen, are of opinion that such reaction may occur in cases similar in clinical appearance to tubercle, but in which tubercle plays no part. Von Esmarch, of Keil, speaks well of its diagnostic value as especially manifest in early stages of tuberculous surgical affections where the diagnosis is most difficult by other means. Other observers record the results of their experience to much the same effect, some laying great stress upon the manner in which attention may be called bylocal reaction to unsuspected centres of disease, whilst others have reason to believe that such forms of local reaction are some times to be met with without actual tuberculosis of the part affected. —*British Medical Journal.*

The following specimen is from *The Southport Guardian*:

INFLUENZA IN HORSES.

For experienced Advice, and the successful treatment of this disease, apply to
RICHARD HARVEY,
Legally Registered
VETERINARY SURGEON,
FORMBY.

R. H. was presented with a Silver Cup in 1866 by the Dairymen of Plymouth for his successful treatment of their Cows in the Rinderpest—whereas the Professors at the Veterinary College could only advise their being shot or otherwise slaughtered.

CORRESPONDENCE.

THE RECORD AND THE ELECTION.

SIR,

Will you allow me through the pages of *The Record* to offer my very hearty congratulations to the members of the profession on the success obtained at the last election, when the six Reform Candidates were returned to the Council by a majority of more than two to one. "The gallery" has spoken, and with no uncertain sound. Very emphatically has it stated the reforms to be carried out, and it is to be hoped that the Council will now acquiesce in the wish of the majority. Already I see signs of a change of opinion amongst some of our greatest opponents, and no doubt by the time the new Council settles itself to steady work, every one of its members will have persuaded themselves that they have all along desired the three reforms we have been agitating for, and will do their best to carry them out to the satisfaction of everyone concerned. In conclusion I would add, that our thanks are due to you for the very handsome way in which you have opened the pages of *The Record* for the discussion that has taken place on the subject.

I am, yours faithfully,

27 Walpole St., Chelsea. W. J. MULVEY.

DEAR SIR,

In congratulating each other upon the happy result of the late election, I am forcibly reminded of the extent of our indebtedness to you for the freedom with which you threw open the columns of *The Record* for electioneering purposes.

To your able pen, and to the strenuous efforts of Mr. Mulvey in particular, do we owe the proud and much-longed-for position of to-day's Veterinary Politics.

O tempora! O mores! How the naughty boys of the "*gallery*" have shocked the great *silent* ones!

The profession is roused at last; past apathy is shaken off—let us hope never to return. The reform movement has been staunch and steady, and its results plainly indicate the desires and aspirations of the bulk of the profession. Such being the case one might fairly anticipate that a greater portion at anyrate, of non-reforming councilmen will yield with good grace to those desires and changes, so that the good work may be immediately taken in hand and rapidly advanced.

Yours truly,

Halifax, May 1891. A. WILLIAM BRIGGS.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—"The Southport Guardian."